

REMARKS

Applicants gratefully acknowledge the indication by the Examiner that claim 17 would be allowable if rewritten in independent form. However, for the reasons outlined below, Applicants respectfully submit that all of the pending claims, i.e., claims 15-17 and 22 should be allowable.

Claims 15-17 and 22 are pending in the application. Claims 1-14 and 18-21 were withdrawn from consideration and are canceled without prejudice or disclaimer.

Notwithstanding any claim amendments of the present Amendment or those amendments that may be made later during prosecution, Applicants' intent is to encompass equivalents of all claim elements. Reconsideration in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 15, 16, and 22 stand rejected under 35 U.S.C. §102(e) as anticipated by U. S. Patent No. 5,790,874 to Takano et al. (hereinafter, Takano).

This rejection is respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

The claimed invention, as defined in independent claim 15, is directed to a method of reducing power in a portable microprocessor that includes obtaining an opcode group and obtaining a control signal therefrom, determining whether said control signal is active, if said control signal is determined to be active, setting the control signal to active, running a test case for the opcode group to determine whether the opcode passes, and if said opcode group passes, marking the control signal.

The claimed invention, as defined in independent claim 22, is directed to a signal-bearing medium tangibly embodying a program of machine-readable instructions executed by an apparatus to perform a method of reducing power in a portable microprocessor. The method includes obtaining an opcode group and obtaining a control signal therefrom, determining whether said control signal is active, if said control signal is determined to be active, setting the control signal to active, running a test case for the opcode group to determine whether the opcode passes, and if said opcode group passes, marking the control signal.

An exemplary embodiment of the present invention may be termed an "Auto_Don't_Care (ADC)" method which automates the finding of control bits which need not toggle (e.g., automates finding of "Don't_Care_Bits"), and frees the designer from having to do a manual search for such bits (Application, page 16, lines 13-16).

II. THE PRIOR ART REJECTION

The Takano Reference

As shown in Fig. 2 of Takano, in the instruction sequence optimization method, first mutual dependence relations of respective instructions constituting a program are analyzed by an instruction sequence analyzing means (step 201) (col. 9, lines 37-41). And, sequences of the instructions are modified so as to reduce the Hamming distances between bit sequences appearing on the instruction bus without influence to the dependent relation (step 203) (col. 9, lines 41-44). Thus, low power consumption caused on the instruction bus can be achieved by the modification of the instruction sequences (col. 9, lines 44-46).

Claims 15 and 22 recite at least the features of "obtaining an opcode group and obtaining a control signal therefrom ... determining whether said control signal is active ... marking the control signal."

Takano seeks to reduce power consumption on an instruction bus by optimizing a sequence of instructions, such that differences in bit sequences (and the toggling between states necessitated by these differences) between successive instructions are minimized.

In contrast, the present invention provides a method, such that unnecessary toggling between bits of control signals is minimized. As is known to one of ordinary skill in the art, an opcode will correspond to a particular state for the control signals of the microprocessor. The present invention minimizes toggling between of a control signal of an opcode by looking to the previous state of the control signal. When the control signal matches that of the previous state, there is no need to set the control signal to a value, i.e., the control signal is marked.

Nowhere does Takano teach or suggest at least the features of "obtaining an opcode group and obtaining a control signal therefrom ... determining whether said control signal is active ... marking the control signal," as recited in claims 15 and 22.

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For at least the reasons outlined above, Applicants respectfully submit that Takano does not disclose, teach or suggest every feature of claims 15 and 22. Accordingly, Takano does not anticipate, or render obvious, the subject matter of claims 15 and 22, and claims 16 and 17, which depend from claim 15. Withdrawal of the rejection of claims 15-17 and 22 under 35 U.S.C. §102(e) as anticipated by Takano is respectfully solicited.

CONCLUSION

In view of the foregoing, Applicant submits that claims 15-17 and 22 all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 09-0456.

Respectfully Submitted,

Date: 2/4/07

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